Remarks

Applicant and the Examiner are in fundamental disagreement over the application of the prior art to the claims presented. Applicant will attempt here clearly articulate the flaws with the Examiner's rationale in applying the prior art, to hopefully streamline prosecution or at least clarify the issues for appeal.

The Examiner's applied references are Critchlow et al. and Kormos et al. Each will be discussed in turn.

Critchlow is a patent application claiming a priority date of 2001, directed to an injector for use in the shielded room of an MRI suite, i.e., Critchlow is directed to the same type of device that is the subject of the present application. Critchlow actually discloses a third-generation injector of this type, the first generation being that shown in U.S. Patent 5,494,036 which was filed in 1993 and issued in 1996, and the second generation being application 09/586,140 filed June 2, 2000, both of which are owned by the same assignee as the Critchlow application. The prior devices of the '036 patent and '140 patent application are noted and paragraph 0038 of the Critchlow specification and there are also mentions in paragraphs 0009 and 0047.

Those two prior generation devices, and the device that is shown in the Critchlow specification, use a battery pack (135 in Critchlow's drawings) to power the injector, and provide control signals to the injector over radio, fiber optic and/or infrared connections. As noted in paragraph 0038 of Critchlow, the control connection is "typically ... by way of a fiber optic cable 140 which passes through a tuned port 142 in the wall 144 between the scan room 115 and the control room and provides a communicative link with little or no incoming RF interference."

While various aspects of the Critchlow device are modified from the device of the '036 patent, these key aspects, i.e., the use of a battery for power and fiber optic and/or IR control connections, are unchanged.

Kormos is a 2001 patent, filed in 1997, that relates to the placement of a display terminal in a shielded room of an MRI suite. The disclosure of Kormos is directed to retrofitting of an existing LCD display for this application, which involves, among other steps, removal of the power supply and its large iron-core transformers, and replacement of that power supply with a shielded wire coupled to a "remote power source 32" (col. 6, lines 15-18). The retrofit process also involves reworking the video signal receiving circuitry as described in col. 5, to include a fiber optic receiver 36 that receives red/green/blue

video signals over fiber optic lines 44a/44b/44c. These run through a waveguide penetration to a fiber optic transmitter 66 outside the room. In addition, a fiber optic transmitter 34 is incorporated into the LCD housing to transmit infrared control signals received within the shielded room along a fiber optic connection 72 to a fiber optic receiver 70 which provides control signals to the remote workstation.

Kormos clearly states why fiber optics are used in the various connections described above: "[v]ideo signals transmitted by the remote signal processing systems into the exam room over conductive cables will tend to leak RF interference into the exam room due to the RF frequencies of the video signals." (Col. 2, lines 26-30)

With this background, the Examiner's rejections can be analyzed. The Examiner appears to concede that the present claims distinguish from Critchlow because the claims recite a power connection coupling electrical power from outside of the shielded room to the power head of the injector inside the room. It is the Examiner's theory, however, that a person of skill would have been motivated by Kormos to remove the battery shown by Critchlow and replace it with a shielded wire connected to a remote power source, since that is the way that Kormos replaced the transformers in his LCD screen.

Applicant fundamentally disagrees with this hypothesis of the Examiner, as inconsistent with how the references would actually motivate a person of skill. Specifically, the person of skill would see from both Critchlow and Kormos that conductive connections from outside the room are to be avoided; Critchlow explains that fiber optics, infrared or RF transmissions should be used to communicate with the injector, and Kormos explains that video signals should only be carried to the video screen on fiber optic. Furthermore, the person of skill would see that the Critchlow disclosure is directed to a third generation device, i.e., the device that the Examiner is hypothetically constructing. Thus Critchlow would clearly be the primary source for design hints since it is directed to a similar target device. Finally, the person of skill would see that Critchlow is a third generation device, and that it and its two predecessor devices all used batteries to power the injector. Kormos, on the other hand, is a first generation or prototype of an unrelated type of device (a display screen), which was built by retrofitting existing systems.

Exposed to these facts, the person of skill would not follow Kormos to remove the Critchlow batteries and add a conductive connection to the outside of the room; this would be immediately perceived as a downgrading of the Critchlow device.

First of all, the Critchlow device is not in need of power supply modification since its power source is already MRI-compliant (unlike the Kormos power supply circuit with its iron-core transformers). Indeed, instead of modifying Critchlow in view of Kormos, the person of skill would only consider the reverse, suggesting a modification of Kromos to operate the LCD screen on battery power, so as to eliminate the power connection that Kormos retrofitted into his system and achieve the advantages of a third generation injector device.

In this analysis, it is important to note that the Critchlow system is one that is designed to be an MR injector and thus would be perceived as optimized for that application, whereas the Kormos LCD screen is not an injector and not even designed for MR use and is being retrofitted for such use. A retrofitted, unrelated design does not inspire changes to a customized, directly related design, but rather the other way around. Such is the nature of design analysis.

Applicant thus submits that the Examiner is incorrect that Kormos would motivate changes to Critchlow, and that the Examiner's rejections of the claims based on obviousness are unsound.

Applicant's prior remarks have noted that claims 2 and 3-5 recite a power connection that is not only carrying power but

"further coupling/carrying [] data signals"; Applicant submits this is also a patentable distinction from the cited references.

Initially, Applicant notes that the Examiner's remarks state that the word "single" is not used in the claims, which is correct - what the claims state is that a power connection is "further" "coupling" or "carrying" data signals. The point at issue is the use of a "single" conductor, but the use of the same connection for power and data. I.e, the point is not necessarily that there is a single wire but a single cable, for power and data.

On the merits of this point, the Examiner has stated that Kormos at col. 6, lines 30-33 states that fiber optic lines allow for transmission of video and control signals over very long distances without significant degradation of the data. The Examiner's conclusion from this is that "over short distances the use of shielded cables are equivalent to fiberoptics and one skilled in the art would be motivated to use one instead of the other as a functional equivalent providing the same end result of signal and/or power transmission".

Applicant wholeheartedly disagrees with this analysis by the Examiner. The cited text from Kormos is merely an elaboration of advantages of fiber optics <u>in addition to avoiding RF interference</u>, and it is the avoidance of RF interference that

leads Kormos to fiber optics. Immediately prior to the sentence quoted by the Examiner, Kormos states that the main advantage of his device is in "various environments where radio interference may pose a problem". That is, in contrast to the Examiner's interpretation, the main requirement is avoiding radio interference, not signal fidelity over long distances. And, as Kormos observes earlier, in his view avoiding radio interference involves the use of fiber because "signals transmitted by the remote signal processing systems into the exam room over conductive cables will tend to leak RF interference into the exam room" (col 2, lines 26-28).

Thus, it is not the case, as the Examiner posits, that a person of skill reading Kormos would consider conductors in cables to be a "functional equivalent" to a fiber optic line, exactly because Kormos says they are not. Kormos rejects conductors because they "tend to leak RF interference", and this is what leads to fiber optics. The fact that fiber optics also have long-distance fidelity is a bonus, but not the main point.

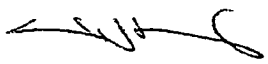
Critchlow, of course, supplies no suggestion of using conductors to carry signals all the way from the control panel to the injector; in all cases he will use fiber optics to avoid a conductive connection and RF interference.

Thus, Applicant submits there is simply no suggestion in either Critchlow or Kormos of carrying control signals along a conductor, or otherwise along the same cable that carries power, as is claimed in claims 2 and 3-5.

Applicant thus submits that all claims are allowable over the prior art cited, and earnestly requests issuance of a Notice of Allowability.

A petition for a one-month extension of time is attached hereto. If any further petition for extension of time is necessary to accompany this communication, please consider this paper a petition for such an extension of time, and apply the appropriate extension of time fee to Deposit Account 23-3000. If any other charges or credits are necessary to complete this communication, please apply them to Deposit Account 23-3000.

Respectfully submitted,



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